

## SEQUENCE LISTING



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<212> PRT

<213> Homo sapiens

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Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe Glu Ala Ala

Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln Pro Thr 50 55 60

Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu 65 70 75 80

Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg 85 90 95

Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu
100 105 110

Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met 115 120 125

Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe 130 135 140

Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr 145 150 155 160

Ser Asp Leu Gly Asn Val Leu Thr Ser Ala Pro Asn Ala Lys Thr Val 165 170 175

Asn Gly Lys Ala Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu 180 185 190

Glu Ala Glu Glu Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys 195 200 205

Lys Met Met Lys Lys Ser Ala Asp His Lys Asn Leu Glu Val Ile Val 210 215 220

Thr Asn Gly Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp

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Pro Ile Asp Glu 260	_	Gln Thr Gly 265	Lys Ser Ala	Val Cys Ile 270
His Gln Asp Ile 275	Asn Asp Asp	His Val Glu 280	Asp Val Thr 285	Gly Ile Gln
His Leu Thr Ser 290	Asp Ser Asp 295		Tyr Cys Asp 300	Ser Met Glu
Gln Phe Gly Glr 305	Glu Glu Ser 310	Leu Asp Ser	Phe Thr Ser	Asn Asn Gly 320
Pro Phe Gln Tyr	Tyr Leu Gly 325	Gly His Ser 330	Ser Gln Pro	Met Glu Asn 335
Ser Gly Phe Arg		Gln Val Pro 345	Pro Gly Asn	Gly Asn Ile 350
Gly Asn Met Glr 355	Val Val Ala	Val Glu Gly 360	Lys Gly Glu 365	Val Lys His
Gly Gly Glu Asp 370	Gly Arg Asn 375	_	Ala Pro His 380	Arg Glu Lys
Arg Gly Gly Glu 385	Thr Asp Glu 390	Phe Ser Asn	Val Arg Arg 395	Gly Arg Gly 400
His Arg Ile Glm	His Leu Ser	Glu Gly Thr 410	Lys Gly Arg	Gln Val Gly 415
Ser Gly Gly Asp 420	-	Trp Gly Ser 425	Asp Arg Gly	Ser Arg Gly 430
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Leu Gln Ala Lys 465	Ser Ser Thr 470	Ser Thr Leu	Gln Thr Ala 475	Pro Gln Pro 480
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<213> Homo sapiens

<220>

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Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe Glu Ala Ala 35 40 45

Val Lys Val Ile Gln Ser Leu Pro Lys Asn Asp Ser Phe Gln Pro Thr
50 55 60

Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu 65 70 75 80

Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg 85 90 95

Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu
100 105 110

Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met 115 120 125

Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe 130 135 140

Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr 145 150 155 160

Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu Gly Asn 165 170 175

Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys Ala Glu 180 185 190

Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Glu Ala Gln Glu Glu
195 200 205

Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met Lys Lys 210 215 220

Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp 225 230 235 240

Lys	Asp	Gly	Phe	Val 245	Gln	Asp	Ile	Gln	Asn 250	Asp	Ile	His	Ala	Ser 255	Ser
Ser	Leu	Asn	Gly 260	Arg	Ser	Thr	Glu	Glu 265	Val	Lys	Pro	Ile	Asp 270	Glu	Asn
Leu	Gly	Gln 275	Thr	Gly	Lys	Ser	Ala 280	Val	Cys	Ile	His	Gln 285	Asp	Ile	Asn
Asp	Asp 290	His	Val	Glu	Asp	Val 295	Thr	Gly	Ile	Gln	His 300	Leu	Thr	Ser	Asp
Ser 305	Asp	Ser	Glu	Val	Туг 310	Cys	Asp	Ser	Met	Glu 315	Gln	Phe	Gly	Gln	Glu 320
Glu	Ser	Leu	Asp	Ser 325	Phe	Thr	Ser	Asn	Asn 330	Gly	Pro	Phe	Gln	Tyr 335	Tyr
Leu	Gly	Gly	His 340	Ser	Ser	Gln	Pro	Met 345	Glu	Asn	Ser	Gly	Phe 350	Arg	Glu
Asp	Ile	Gln 355	Val	Pro	Pro	Gly	Asn 360	Gly	Asn	Ile	Gly	Asn 365	Met	Gln	Val
Val	Ala 370	Val	Glu	Gly	Lys	Gly 375	Glu	Val	Lys	His	Gly 380	Gly	Glu	Asp	Gly
Arg 385	Asn	Asn	Ser	Gly	Ala 390	Pro	His	Arg	Glu	Lys 395	Arg	Gly	Gly	Glu	Thr 400
Asp	Glu	Phe	Ser	Asn 405	Val	Arg	Arg	Gly	Arg 410	Gly	His	Arg	Met	Gln 415	His
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Glu	Arg	Trp 435	Gly	Ser	Asp	Arg	Gly 440	Ser	Arg	Gly	Ser	Leu 445	Asn	Glu	Gln
Ile	Ala 450	Leu	Val	Leu	Met	Arg 455	Leu	Gln	Glu	Asp	Met 460	Gln	Asn	Val	Leu
Gln 465	Arg	Leu	Gln	Lys	Leu 470	Glu	Thr	Leu	Thr	Ala 475	Leu	Gln	Ala	Lys	Ser 480
Ser	Thr	Ser	Thr	Leu 485	Gln	Thr	Ala	Pro	Gln 490	Pro	Thr	Ser	Gln	Arg 495	Pro
Ser	Trp	Trp	Pro 500	Phe	Glu	Met	Ser	Pro 505	Gly	Val	Leu	Thr	Phe 510	Ala	Ile
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Arg Arg Lys Leu Asn 530

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Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln
                         55
Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala
Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile
                 85
Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys
                                105
Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu
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                                                 125
Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly
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Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp
Ile Thr Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu
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Gly Asn Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys
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Glu Glu Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met
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Lys Lys Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly
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Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala
                245
                                    250
Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp
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265

260

Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp 275 280 285

Ile Asn Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr 290 295 300

Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly 305 310 315 320

Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln 325 330 335

Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe 340 345 350

Arg Glu Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met 355 360 365

Gln Val Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Glu Glu 370 375 380

Asp Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly Gly 385 390 395 400

Glu Thr Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Met 405 410 415

Gln His Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly
420 425 430

Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn 435 440 445

Glu Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn 450 455 460

Val Leu Gln Arg Leu Gln Lys Leu Glu Met Leu Thr Ala Leu Gln Ala 465 470 475 480

Lys Ser Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln 485 490 495

Arg Pro Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe 500 505 510

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Gln Arg Arg Arg Lys Leu Asn 530 535

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Leu	Glu	Met 35	Arg	His	Thr	Arg	Ser 40	Val	His	Glu	Thr	Arg 45	Phe	Glu	Ala
Ala	Val 50	Lys	Val	Ile	Gln	Ser 55	Leu	Pro	Lys	Asn	Gly 60	Ser	Phe	Gln	Pro
Thr 65	Asn	Glu	Met	Met	Leu 70	Lys	Phe	Tyr	Ser	Phe 75	Tyr	Lys	Gln	Ala	Thr 80
Glu	Gly	Pro	Cys	Lys 85	Leu	Ser	Lys	Pro	Gly 90	Phe	Trp	Asp	Pro	Val 95	Gly
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Glu	Ala	Met 115	Ile	Ala	Tyr	Val	Glu 120	Glu	Met	Lys	Lys	Ile 125	Leu	Glu	Thr
Met	Pro 130	Met	Thr	Glu	Lys	Val 135	Glu	Glu	Leu	Leu	His 140	Val	Ile	Gly	Pro
Phe 145	Tyr	Glu	Ile	Val	Glu 150	Asp	Lys	Lys	Ser	Gly 155	Arg	Ser	Ser	Asp	Leu 160
Thr	Ser	Val	Arg	Leu 165	Glu	Lys	Ile	Ser	Lys 170	Cys	Leu	Glu	Asp	Leu 175	Gly
Asn	Val	Leu	Ala 180	Ser	Thr	Pro	Asn	Ala 185	Lys	Thr	Val	Asn	Gly 190	Lys	Ala
Glu	Ser	Ser 195	Asp	Ser	Gly	Ala	Glu 200	Ser	Glu	Glu	Glu	Ala 205	Ala	Gln	Glu
Asp	Pro 210	Lys	Arg	Pro	Glu	Pro 215	Arg	Asp	Ser	Asp	Lys 220	Lys	Met	Met	Lys
Lys 225	Ser	Ala	Asp	His	Lys 230	Asn	Leu	Glu	Ile	Ile 235	Val	Thr	Asn	Gly	Туг 240
Asp	Lys	Asp	Ser	Phe 245	Val	Gln	Gly	Val	Gln 250	Asn	Ser	Ile	His	Thr 255	Ser
Pro	Ser	Leu	Asn 260	Gly	Arg	Cys	Thr	Glu 265	Glu	Val	Lys	Ser	Val 270	Asp	Glu
Asn	Leu	Glu 275	Gln	Thr	Gly	Lys	Thr 280	Val	Val	Phe	Val	His 285	Gln	Asp	Val

Asn Ser Asp His Val Glu Asp Ile Ser Gly Ile Gln His Leu Thr Ser

290 295 300

Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln 305

Glu Glu Ser Leu Asp Gly Phe Ile Ser Asn Asn Gly Pro Phe Ser Tyr 325

Tyr Leu Gly Gly Asn Pro Ser Gln Pro Leu Glu Ser Ser Gly Phe Pro 340

Glu Ala Val Gln Gly Leu Pro Gly Asn Gly Ser Pro Glu Asp Met Gln
355 360 365

Gly Ala Val Val Glu Gly Lys Gly Glu Val Lys Arg Gly Gly Glu Asp 370 375 380

Gly Gly Ser Asn Ser Gly Ala Pro His Arg Glu Lys Arg Ala Gly Glu 385 390 395 400

Ser Glu Glu Phe Ser Asn Ile Arg Arg Gly Arg Gly His Arg Met Gln
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His Leu Ser Glu Gly Ser Lys Gly Arg Gln Val Gly Ser Gly Gly Asp
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Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu 435 440 445

Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val 450 455 460

Leu Gln Arg Leu His Lys Leu Glu Met Leu Ala Ala Ser Gln Ala Lys 465 470 475 480

Ser Ser Ala Leu Gln Thr Ser Asn Gln Pro Thr Ser Pro Arg Pro Ser 485 490 495

Trp Trp Pro Phe Glu Met Ser Pro Gly Ala Leu Thr Phe Ala Ile Ile 500 505 510

Trp Pro Phe Ile Ala Gln Trp Leu Val His Leu Tyr Tyr Gln Arg Arg 515 520 525

Arg Arg Lys Leu Asn 530

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<212> PRT

<213> Mus musculus

<400> 6

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Ala	Asp	Thr 35	Pro	Ser	Val	Tyr	Glu 40	Thr	Arg	Phe	Glu	Ala 45	Ala	Val	Lys
Val	Ile 50	Gln	Ser	Leu	Pro	Lys 55	Asn	Gly	Ser	Phe	Gln 60	Pro	Thr	Asn	Glu
Met 65	Met	Leu	Lys	Phe	Туr 70	Ser	Phe	Tyr	Lys	Gln 75	Ala	Thr	Glu	Gly	Pro 80
Cys	Lys	Leu	Ser	Arg 85	Pro	Gly	Phe	Trp	Asp 90	Pro	Ile	Gly	Arg	Tyr 95	Lys
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Ile	Ala	Tyr 115	Val	Glu	Glu	Met	Lys 120	Lys	Ile	Ile	Glu	Thr 125	Met	Pro	Met
Thr	Glu 130	Lys	Val	Glu	Glu	Leu 135	Leu	His	Val	Ile	Gly 140	Pro	Phe	Tyr	Glu
Ile 145	Val	Glu	Asp	Lys	Lys 150	Ser	Ser	Lys	Ser	Ser 155	Asp	Leu	Thr	Ser	Asp 160
Leu	Gly	Asn	Val	Leu 165	Thr	Ser	Ser	Asn	Ala 170	Lys	Ala	Val	Asn	Gly 175	Lys
Ala	Glu	Ser	Ser 180	Asp	Ser	Gly	Ala	Glu 185	Ser	Glu	Glu	Glu	Glu 190	Alà	Gln
Glu	Glu	Leu 195	Lys	Gly	Ala	Glu	Gln 200	Ser	Gly	Ser	Asp	Asp 205	Lys	Lys	Thr
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Туг 225	Lys	Gly	Ser	Phe	Val 230	Gln	Asp	Ile	Gln	Ser 235	Asp	Ile	His	Thr	Asp 240
Ser	Ser	Arg	Ser	Thr 245	Arg	Ser	Ser	Glu	Asp 250	Glu	Lys	Pro	Gly	Asp 255	Glu
Ser	Ser	Gln	Gln 260	Thr	Gly	His	Thr	Ile 265	Val	Cys	Ala	His	Gln 270	Asp	Arg
Asn	Glu	Asp 275	Pro	Ser	Glu	Asp	Ala 280	Ser	Gly	Ile	His	His 285	Leu	Thr	Ser
Asp	Ser 290	Asp	Ser	Glu	Val	Tyr 295	Cys	Asp	Ser	Met	Glu 300	Gln	Phe	Gly	Gln
Glu 305		Tyr	Tyr		Gly 310	_	Asp	Pro		Gln 315		Leu	Glu	Ser	Ser 320

Gly Phe Cys Glu Asp Ala Gln Gln Ser Pro Gly Asn Gly Ser Ile Gly 325 Lys Met Trp Met Val Ala Val Lys Gly Lys Gly Glu Val Lys His Gly 345 Gly Glu Asp Gly Arg Ser Ser Gly Ala Pro His Arg Glu Thr Arg 360 Gly Glu Ser Glu Asp Phe Ser Ser Val Arg Arg Gly Arg Val Gly 375 Asn Arg Ile Pro His Leu Ser Glu Gly Pro Lys Gly Arg Gln Val Gly 395 390 Ser Gly Gly Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly 405 410 Ser Leu Asn Glu Gln Ile Ala Leu Val Leu Ile Arg Leu Gln Glu Asp 425 420 Met Gln Asn Val Leu Gln Arg Leu His Lys Leu Glu Thr Leu Thr Ala 440 Ser Gln Ala Lys Leu Ser Leu Gln Thr Ser Asn Gln Pro Ser Ser Gln 450 455 Arg Pro Ala Trp Trp Pro Phe Glu Met Ser Pro Gly Ala Leu Ala Phe 470 Ala Ile Ile Trp Pro Phe Ile Ala Gln Trp Leu Ala His Leu Tyr Tyr 490 Gln Arg Arg Arg Lys Leu Asn 500 <210> 7 <211> 283 <212> PRT <213> Homo sapiens <400> 7 Ile His Ala Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys 5 10 Pro Ile Asp Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile 20 25 His Gln Asp Ile Asn Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu 50 55 60

75

Gln Phe Gly Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly

65

Pro Phe Gln Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe Arg Glu Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu Asp Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys 135 Arg Gly Gly Glu Thr Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly 145 150 155 160 His Arg Met Gln His Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly 165 170 Ser Gly Gly Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly 185 Ser Leu Asn Glu Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp 195 200 Met Gln Asn Val Leu Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala 220 Leu Gln Ala Lys Ser Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro 225 230 240

Thr Ser Gln Arg Pro Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val

Leu Thr Phe Ala Ile Ile Trp Pro Phe Ile Ala Gln Trp Leu Val Tyr 260 265 270

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 sequence

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Leu Gln Glu Gln Phe Glu Ala Ala Glu Lys Val Lys Lys Leu Lys

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Lys Asn Pro Ser Asn Asp Glu Leu Leu Gln Leu Tyr Ser Leu Tyr Lys
20 25 30

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Leu	Lys 50	Gly	Arg	Ala	Lys	Trp 55	Asp	Ala	Trp	Asn	Glu 60	Leu	Lys	Gly	Met	
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- Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln Pro Thr
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- Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu 65 70 75 80
- Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg
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- Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu
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- Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met 115 120 125
- Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe 130 135 140
- Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr 145 150 155 160
- Ser Asp Leu Gly Asn Val Leu Thr Ser Ala Pro Asn Ala Lys Thr Val 165 170 175
- Asn Gly Lys Ala Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu 180 185 190
- Glu Ala Gln Glu Glu Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys 195 200 205
- Lys Met Met Lys Lys Ser Ala Asp His Lys Asn Leu Glu Val Ile Val 210 215 220
- Thr Asn Gly Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp 225 230 235 240
- Ile His Ala Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys 245 250 255
- Pro Ile Asp Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile 260 265 270
- His Gln Asp Ile Asn Asp Asp His Val Glu Asp Val Thr Gly Ile Gln 275 280 285
- His Leu Thr Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu 290 295 300

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Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg Tyr Lys 65 70 75 80

Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu Ala Met 85 90 95

Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met Pro Met 100 105 110

Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe Tyr Glu 115 120 125

Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr Ser Asp 130 135 140

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Ser Phe Tyr Lys Gln Ala Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro
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Gly Phe Trp Asp Pro Ile Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser
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Met Lys Lys Ile Ile Glu Thr Met Pro Met Thr Glu Lys Val Glu Glu 85 90 95

Leu Leu Arg Val Ile Gly Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys 100 105 110

Ser Gly Arg Ser Ser Asp Ile Thr Ser Val Arg Leu Glu Lys Ile Ser 115 120 125

Lys Cys Leu Glu Asp Leu Glu Glu Glu Glu Glu Glu Glu Glu Val Lys 130 135 140

Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met Lys Lys Ser Ala 145 150 155 160

Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp Lys Asp 165 170 175

Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala Ser Ser Leu 180 185 190

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Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp Ile Asn Asp Asp 210 215 220

His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp Ser Asp 225 230 235 240

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Gly Phe Trp Asp Pro Ile Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser
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                                         75
Met Lys Lys Ile Ile Glu Thr Met Pro Met Thr Glu Lys Val Glu Glu
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Ser Gly Ala Glu Ser Glu Glu Glu Glu Ala Gln Glu Val Lys Gly
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1368

190

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Gly Lys Ser Ala Val Cys Ile His Gln Asp Ile Asn Asp Asp His Glu 225 230 235 240

Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp Ser Asp Ser Glu Val 245 250 255

Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln Glu Glu Ser Leu Asp Ser 260 265 270

Phe Thr Ser Asn Asn Gly Pro Phe Gln Tyr Tyr Leu Gly Gly His Ser 275 280 285

Ser Gln Pro Met Glu Asn Ser Gly Phe Arg Glu Asp Ile Gln Val Pro 290 295 300

Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val Val Ala Val Gly Lys 305 310 315 320

Gly Glu Val Lys His Gly Gly Glu Asp Gly Arg Asn Asn Ser Gly Ala 325 330 335

Pro His Arg Glu Lys Arg Gly Gly Glu Thr Asp Glu Phe Ser Asn Val 340 345 350

Arg Arg Gly Arg Gly His Arg Met Gln His Leu Ser Glu Gly Thr Lys 355 360 365

Gly Arg Gln Val Gly Ser Gly Gly Asp Gly Glu Arg Trp Gly Ser Asp 370 375 380

Arg Gly Ser Arg Gly Ser Leu Asn Glu Gln Ile Ala Leu Val Leu Met 385 390 395 400

Arg Leu Gln Glu Asp Ile Gln Asn Val Leu Gln Arg Leu Gln Lys Leu 405 410 415

Glu Thr Leu Thr Ala Leu Gln Ala Lys Ser Ser Thr Ser Thr Leu Gln 420 425 430

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                                                     30
Trp Gln Leu Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe
         35
Glu Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe
                         55
Gln Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln
 65
Ala Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro
Ile Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr
            100
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Lys Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr Ser Asp Leu Gly Asn Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys Ala Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Glu Ala Gln Glu Glu Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met Lys Lys Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp Ile Asn Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe Arg Glu Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu Asp Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly Glu Thr Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Met Gln His Leu Ser Glu Gly Thr Lys Gly Arg 

Gln Val Gly Ser Gly Gly Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly 420 425 430 Ser Arg Gly Ser Leu Asn Glu Gln Ile Ala Leu Val Leu Met Arg Leu 435 440 Gln Glu Asp Met Gln Asn Val Leu Gln Arg Leu Gln Lys Leu Glu Thr 455 Leu Thr Ala Leu Gln Ala Lys Ser Ser Thr Ser Thr Leu Gln Thr Ala 470 465 475 480 Pro Gln Pro Thr Ser Gln Arg Pro Ser Trp Trp Pro Phe Glu Met Ser 485 490 Pro Gly Val Leu Thr Phe Ala Ile Ile Trp Pro Phe Ile Ala Gln Trp 500 505 Leu Val Tyr Leu Tyr Tyr Gln Arg Arg Arg Lys Leu Asn Leu Glu 515 520 525

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- <212> PRT
- <213> Homo sapiens
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- Leu Leu Pro Asp Ser Ala Asp Arg Pro Trp Asp Arg Gly Gln His
  20 25 30
- Trp Gln Leu Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe 35 40 45
- Glu Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe 50 55 60
- Gln Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln 65 70 75 80
- Ala Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro 85 90 95
- Ile Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr 100 105 110
- Lys Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile 115 120 125
- Glu Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile 130 135 140
- Gly Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser 145 150 155 160
- Asp Ile Thr Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp 165 170 175
- Leu Gly Asn Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly
  180 185 190
- Lys Ala Glu Gly Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Glu Ala 195 200 205
- Gln Glu Glu Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met 210 215 220
- Met Lys Lys Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn 225 230 235 240
- Gly Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His 245 250 255

Ala Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile
260 265 270

Asp Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln 275 280 285

Asp Ile Asn Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu 290 295 300

Thr Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe 305 310 315 320

Gly Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe 325 330 335

Gln Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly 340 345 350

Phe Arg Glu Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn 355 360 365

Met Gln Val Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly 370 375 380

Glu Asp Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly 385 390 395 400

Gly Glu Thr Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg 405 410 415

Met Gln His Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly
420 425 430

Gly Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu 435 440 445

Asn Glu Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln 450 455 460

Asn Val Leu Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala Leu Gln 465 470 475 480

Ala Lys Ser Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser 485 490 495

Gln Arg Pro Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr 500 505 510

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Trp Gln Leu Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe
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Glu Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe
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Gln Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln
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Ł

Gly Arg Gly His Arg Met Gln His Leu Ser Glu Gly Thr Lys Gly Arg 405 410 415 Gln Val Gly Ser Gly Gly Asp Gly Gly Arg Trp Gly Ser Asp Arg Gly 425 Ser Arg Gly Ser Leu Asn Glu Gln Ile Ala Leu Val Leu Met Arg Leu 440 Gln Glu Asp Met Gln Asn Val Leu Gln Arg Leu Gln Lys Leu Glu Thr 450 455 460 Leu Thr Ala Leu Arg Ala Lys Ser Ser Thr Ser Thr Leu Gln Thr Ala 470 475 465 Pro Gln Pro Thr Ser Gln Arg Pro Ser Trp Trp Pro Phe Glu Met Ser 485 490 Pro Gly Val Leu Thr Phe Ala Ile Ile Trp Pro Phe Ile Ala Gln Trp 500 505 Leu Val Tyr Leu Tyr Tyr Gln Arg Arg Arg Lys Leu Asn Leu Glu 520 525

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- Glu Val Lys Pro Ile Asp Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala 260 265 270
- Val Cys Ile His Gln Asp Ile Asn Asp Asp His Val Glu Asp Val Thr 275 280 285
- Gly Ile Gln His Leu Thr Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp 290 295 300
- Ser Met Glu Gln Phe Gly Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser 305 310 315 320
- Asn Asn Gly Pro Phe Gln Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro 325 330 335
- Met Glu Asn Ser Gly Phe Arg Glu Asp Ile Gln Val Pro Pro Gly Asn 340 345 350
- Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly Glu Glu 355 360 365
- Thr Asp Glu Phe Ser Asn Val Arg Gly Arg Gly His Arg Met Gln 370 375 380
- His Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly Asp 385 390 395 400
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- Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val 420 425 430
- Leu Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala Leu Gln Ala Lys
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- Ser Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln Arg 450 455 460
- Pro Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe Ala 465 470 475 480
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<213> Homo sapiens

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Glu Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe 55

Gln Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln 75 70

Ala Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro 85

Ile Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr 105

Lys Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile 115 120 125

Glu Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile 130 135 140

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Glu	Ser	Ser	Asp 180	Ser	Gly	Ala	Glu	Ser 185	Glu	Glu	Glu	Glu	Ala 190	Gln	Glu
Glu	Val	Lys 195	Gly	Ala	Glu	Gln	Ser 200	Asp	Asn	Asp	Ile	Asn 205	Asp	Asp	His
Val	Glu 210	Asp	Val	Thr	Gly	Ile 215	Gln	His	Leu	Thr	Ser 220	Asp	Ser	Asp	Ser
Glu 225	Val	Tyr	Cys	Asp	Ser 230	Met	Glu	Gln	Phe	Gly 235	Gln	Glu	Glu	Ser	Leu 240
Asp	Ser	Phe	Thr	Ser 245	Asn	Asn	Gly	Pro	Phe 250	Gln	Tyr	Tyr	Leu	Gly 255	Gly
His	Ser	Ser	Gln 260	Pro	Met	Glu	Asn	Ser 265	Gly	Phe	Arg	Glu	Asp 270	Ile	Gln
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Glu	Gly 290	Lys	Gly	Glu	Val	Lys 295	His	Gly	Gly	Glu	Asp 300	Gly	Arg	Asn	Asn
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Ser	Asn	Val	Arg	Arg 325	Gly	Arg	Gly	His	Arg 330	Met	Gln	His	Leu	Ser 335	Glu
Gly	Thr	Lys	Gly 340	Arg	Gln	Val	Gly	Ser 345	Gly	Gly	Asp	Gly	Glu 350	Arg	Trp
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Val	Leu 370	Met	Arg	Leu	Gln	Glu 375	Asp	Met	Gln	Asn	Val 380	Leu	Gln	Arg	Leu
Gln 385	Lys	Leu	Glu	Thr	Leu 390	Thr	Ala	Leu	Gln	Ala 395	Lys	Ser	Ser	Thr	Ser 400
Thr	Leu	Gln	Thr	Ala 405	Pro	Gln	Pro	Thr	Ser 410	Gln	Arg	Pro	Ser	Trp 415	Trp
Pro	Phe	Glu	Met 420	Ser	Pro	Gly	Val	Leu 425	Thr	Phe	Ala	Ile	Ile 430	Trp	Pro
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atqttgaaga aatgaaaaag attattgaaa ctatgccaat gactgagaaa gttgaagaat 420
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<213> Homo sapiens
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Trp Gln Leu Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe
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                                                 45
Glu Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe
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                         55
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Lys Leu Asn Leu Glu Gly

Gln 65	Pro	Thr	Asn	Glu	Met 70	Met	Leu	Lys	Phe	Tyr 75	Ser	Phe	Tyr	Lys	Gln 80
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Ile	Gly	Arg	Tyr 100	Lys	Trp	Asp	Ala	Trp 105	Ser	Ser	Leu	Gly	Asp 110	Met	Thr
Lys	Glu	Glu 115	Ala	Ile	Ile	Ala	Tyr 120	Val	Glu	Glu	Met	Lys 125	Lys	Ile	Ile
Glu	Thr 130	Met	Pro	Met	Thr	Glu 135	Lys	Val	Glu	Glu	Leu 140	Leu	Arg	Val	Ile
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Ala	Glu	Ser 195	Ser	Asp	Ser	Gly	Ala 200	Glu	Ser	Glu	Glu	Glu 205	Glu	Ala	Gln
Glu	Glu 210	Val	Lys	Gly	Ala	Glu 215	Gln	Ser	Asp	Asn	Asp 220	Lys	Lys	Met	Met
Lys 225	Lys	Ser	Ala	Asp	His 230	Lys	Asn	Leu	Glu	Val 235	Ile	Val	Thr	Asn	Gly 240
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			260		Gly			265					270		
		275			Thr		280					285			_
	290				Val	295					300				
Ser 305	Asp	Ser	Asp	Ser	Glu 310	Val	Tyr	Cys	Asp	Ser 315	Met	Glu	Gln	Phe	Gly 320
Gln	Glu	Glu	Ser	Leu 325	Asp	Ser	Phe	Thr	Ser 330	Asn	Asn	Gly	Pro	Phe 335	Gln
			340		His			345					350		
Glu	Asp	Ile 355	Gln	Val	Pro	Pro	Gly 360	Asn	Gly	Asn	Ile	Gly 365	Asn	Met	Gln

Val Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu Asp 375 Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Glu Arg Gly Glu 390 395 Thr Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Met Gln 405 410 His Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly Asp 420 425 Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu 440 His Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val Leu Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala Leu Gln Ala Lys 470 475 Ser Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln Arg 485 490 Pro Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe Ala 500 505 Ile Ile Trp Pro Phe Ile Ala Gln Trp Leu Val Tyr Leu Tyr Tyr Gln 520 515 525 Arg Arg Arg Lys Leu Asn Leu Glu 530 535 <210> 45 <211> 1619 <212> DNA <213> Homo sapiens <400> 45 aagettecae catgitecag titeatgeag getettggga aagetggtge tgetgetgee 60 tgattcccgc cgacagacct tgggaccggg gccaacactg gcagctggag atggcggaca 120 cgagatccgt gcacgagact aggtttgagg cggccgtgaa ggtgatccag agtttgccga 180 agaatggttc attccagcca acaaatgaag tgatgcttaa attttatagc ttctataagc 240 aggcaactga aggaccctgt aaactttcaa ggcctggatt ttgggatcct attggaagat 300 ataaatggga tgcttggagt tcactgggtg atatgaccaa agaggaagcc atgattgcat 360 atgttgaaga aatgaaaaag attattgaaa ctatgccaat gactgagaaa gttgaagaat 420 tgctgcgtgt cataggtcca ttttatgaaa ttgtcgagga caaaaagagt ggcaggagtt 480 ctgatataac ctcagtccga ctggagaaaa tctctaaatg tttagaagat cttggtaatg 540 ttctcacttc tactccaaac gccaaaaccg ttaatggtaa agctgaaagc agtgacagtg 600 gagccgagtc tgaggaagaa gaggcccaag aagaagtgaa aggagcagaa caaagtgata 660 atgataagaa aatgatgaag aagtcagcag accataagaa tttggaagtc attgtcacta 720 atggctatga taaagatggc tttgttcagg atatacagaa tgacattcat gccagttctt 780 ccctgaatgg cagaagcact gaagaagtaa agcctattga tgaaaacttg gggcaaactg 840 gaaaatctgc tgtttgcatt caccaagata taaatgatga tcatgttgaa gatgttacag 900

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<211> 538

<212> PRT

<213> Homo sapiens

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Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln 50 55 60

Pro Thr Asn Glu Val Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala 65 70 75 80

Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile 85 90 95

Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys
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Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu 115 120 125

Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly 130 135 140

Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp 145 150 155 160

Ile Thr Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu 165 170 · 175

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180 185 190

Ala Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Glu Ala Gln 195 200 205

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Ser	Ser	Ser	Leu 260	Asn	Gly	Arg	Ser	Thr 265	Glu	Glu	Val	Lys	Pro 270	Ile	Asp
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Asp	Gly	Glu 435	Arg	Trp	Gly	Ser	Asp 440	Arg	Gly	Ser	Arg	Gly 445	Ser	Leu	Asn
Glu	Gln 450	Ile	Ala	Leu	Val	Leu 455	Met	Arg	Leu	Gln	Glu 460	Asp	Met	Gln	Asn
Val 465	Leu	Gln	Arg	Leu	Gln 470	Lys	Leu	Glu	Thr	Leu 475	Thr	Ala	Leu	Gln	Ala 480
Lys	Ser	Ser	Thr	Ser 485	Thr	Leu	Gln	Thr	Ala 490	Pro	Gln	Pro	Thr	Ser 495	Gln
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Cys Cys Cys Leu Ile Pro Ala Asp Arg Pro Trp Asp Arg Gly Gln His Trp Gln Leu Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe 40 Glu Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro 95 Ile Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile 120 Glu Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile 130 135 Gly Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser 150 155 Asp Ile Thr Ser Asp Leu Gly Asn Val Leu Thr Ser Thr Pro Asn Ala 170 Lys Thr Val Asn Gly Lys Ala Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Glu Ala Gln Glu Glu Val Lys Gly Ala Glu Gln Ser Asp 200 Asn Asp Lys Lys Met Met Lys Lys Ser Ala Asp His Lys Asn Leu Glu 210 215 Val Ile Val Thr Asn Gly Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile . 225 235 Gln Asn Asp Ile His Ala Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu 250 Glu Val Lys Pro Ile Asp Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala 260 265 270 Val Cys Ile His Gln Asp Ile Asn Asp Asp His Val Glu Asp Val Thr 280 Gly Ile Gln His Leu Thr Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp 290 295 300 Ser Met Glu Gln Phe Gly Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser 305 310 315 320

Asn Asn Gly Pro Phe Gln Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro 325 330 335

Met Glu Asn Ser Gly Phe Arg Glu Tyr Ile Gln Val Pro Pro Gly Asn

340 345 350

Gly Asn Ile Gly Asn Met Gln Val Val Ala Val Glu Gly Lys Gly Glu 355 360 365

Val Lys His Gly Gly Glu Asp Gly Arg Asn Asn Ser Gly Ala Pro His 370 375 380

Arg Glu Lys Arg Gly Glu Thr Asp Glu Phe Ser Asn Val Gly Arg 385 390 395 400

Gly Arg Gly His Arg Met Gln His Leu Ser Glu Gly Thr Lys Gly Arg 405 410 415

Gln Val Gly Ser Gly Gly Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly
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Pro Gln Pro Thr Ser Gln Arg Pro Ser Trp Trp Pro Phe Glu Met Ser 485 490 495

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